State of California
Department of Food and Agriculture
Division of Measurement Standards

Certificate Number: 4726(a)-00

California Type Evaluation Program

Certificate of Approval

for Liquid Measuring Devices/Vehicle Tank Meters/LPG Meters

For:

Electronic Controller/Register
Retail or Wholesale/Vehicle Tank/LPG
Model: 8456XX-XXX (See Below)
Generic Name: EMR-100
Maximum Volume Display: 999 999
Maximum Totalizer Display: 99 999 999

Submitted by:

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Standard Features and Options

Model/Form Number	X	X	-X	X	X
8456	0-9 = non-metrological safety approvals	0-9 = Designation of other manufacturer or end user	0 = Without printer 1 = With printer	0 = Without preset 1 = With preset	0 = Without temp. comp. 1 = With temp. comp.

Category 1 physical seal (see Sealing, Page 2)
Electronic meter register (EMR) with liquid crystal display and quadrature state pulse encoder (1000 RPM maximum)
Cab mounted interconnect box (IB)
Electronic temperature compensation
Manual or automatic calibration
RS-485 communication protocol
RS-232 communication protocol
Epson TM-295 in-cab printer (optional)
Preset capability with 2-stage valve (optional)

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable technical requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: September 13, 2000

Mike Cleary, Director

Veeder-Root
Electronic Controller/Register
Model: 8456XX-XXX

Application: For use with approved and compatible vehicle mounted and stationary metering systems dispensing petroleum products, anhydrous ammonia, and LPG. The EMR-100 system is used to replace the mechanical registers on vehicle mounted and stationary dispensing systems.

Identification: The identification badge is located on the outside of the electronic meter register housing.

Sealing: The electronic meter register has provisions for a wire security seal. Inside the electronic meter register the central processing unit has a button to enable the calibration and configuration mode. A delivery cannot be indicated or printed unless the system is in the normal delivery mode. The electronic meter register may also be sealed to the mounting assembly.

Operation: The EMR-100 monitors product flow using a quadrature state pulse encoder and a thermistor probe for temperature compensation and is controlled by a micro-controller in the meter register housing. The processed information is sent to the electronic indicator and printer.

Calibration review option available for the operator: From IDLE mode, push the right arrow key and the plus ⊕ key; the EMR will go to the first calibration and configuration state (F01) with the difference that the right arrow, plus ⊕, and FINISH keys will not function and the display will not blink. The user will only be able to step through the existing settings of the calibration and configuration and cannot make changes to the parameters. The EMR will return to the normal mode after 5 minutes or when a new transaction is activated.

Special display option: If temperature compensated, the user can have the display changed so that the current temperature is displayed in the Preset field and the uncompensated volume displayed in the Totalizer field. (This uncompensated volume corresponds to the compensated volume displayed in the Register field.) When in this mode, the Preset will show the temperature followed by a C or F to indicate the temperature units. The Totalizer field will not display leading zeros. This is another visual cue that the EMR is in special display mode because Totalizer values are always displayed with the leading zeros.

To enter the special display mode from DELIVERY, IDLE or READY mode, push the plus ⊕ key. To exit, push the plus ⊕ key again or the EMR will timeout in 5 minutes. The EMR will also leave this display mode automatically at the beginning of a delivery or if a failure occurs.

The temperature display in the Preset field takes precedence over the Preset value and the Tank Volume value which might also be displayed in this field. To see these values, cancel the "spcdisp" (special display) mode. If Preset is active, it will operate by shutting valves at the appropriate time.

Note: The temperature displayed is the current temperature, not an average temperature for the delivery.

Test Conditions: This Certificate supersedes Certificate of Approval Number 4726-98 and is issued to verify the interface with two systems. The Model EMR-100 electronic register was submitted for evaluation. The emphasis of the evaluation was on the ability of a 3rd party device to interface with the Veeder-Root register and interact without influence to any of the metrological parameters. The Model EMR-100 was interfaced with a Mobile Computing Corporation Model 5400-6 (Certificate of Approval Number 4550(a)-97) computing system in a lab. Tests were conducted to verify the sealable parameters of each system were secure. The printed ticket was verified for agreement of indications and information requirements. Previous test conditions are listed below for reference.

Certificate of Approval Number 4726-98: The EMR-100 system was submitted for evaluation. The emphasis of the evaluation was on design, performance, and compatibility when installed on a vehicle mounted 1½ inch Liquid Controls (Model MA7) LPG metering system. Three accuracy tests were conducted at three different flow rates with the temperature compensating system activated and then repeated with the compensating system deactivated. The system was placed into service. The same tests were repeated again approximately 30 days later.

The results of the evaluations and information provided by the manufacturer indicate the device complies with applicable requirements.

Type Evaluation Criteria Used: Title 4, California Code of Regulations, 2000 Edition

Tested By: Dan Reiswig (CA)